DECLARATION

Assistant Commissioner for Patents
Washington, D.C. 20231

August 23, 2002

Sir:

I, R. Carroll Turner, do declare and state as follows: I graduated from North Carolina State University and received a degree in Textile Technology in 1964.

Since February of 1989, I have been employed by the Carpet and Rug Institute, in the technical services area. The Carpet and Rug Institute is an industry trade organization, and is dedicated to disseminating technical knowledge regarding carpets and similar items, as well as better informing the public and various governmental agencies about various aspects of the carpet industry, including carpet-making technology.

DISCUSSION

Carpet comes in various types, such as 12 ft. broadloom carpets, 6 ft. wide roll carpets, rugs, and modular carpet tiles. Modular carpet tiles are gaining an increasing share of the market for carpets in the United States, for a variety of reasons, and therefore new types of carpet tiles, and methods for making these tiles, are in particular demand.

Modular carpet tiles are structurally very different from wall-to-wall or broadloom carpets. For instance, stabilizing membranes are used in carpet tiles in order to provide the necessary dimensional stability. In fact, there are standards for dimensional stability that must be met in order to satisfy commercial and residential users. This dimensional stability of broadloom carpets is of lesser significance than that of modular carpets. In addition, due to environmental

conditions, such as temperature and humidity changes, a carpet tile must be capable of not significantly expanding or contracting; otherwise, the carpet tiles would have gaps or buckle. Broadloom carpets do not have the same problems due to the large surface area. Also, unlike broadloom carpets, which are installed with adhesive, usually modified stapless, many carpet tiles are installed with no adhesive or with a releasable adhesive, which again requires that the carpet tile be very dimensionally stable.

Thus, modular carpet tiles have a number of significant advantages over other types of carpets. For instance, all carpets show the effects of wear in high traffic areas. Often, the bulk of the carpet will still be serviceable, but the presence of significant wear in a high traffic area will require the replacement of the entire carpet. By contrast, carpet tiles are removable and can be replaced in increments. In fact, carpet tiles can even be rotated, just like automobile tires, with worn tiles relegated to less critical areas. The option of removing or replacing individual carpet tiles is a significant advantage of carpet tiles, and is of particular importance in "open office" situations, in which the floor plans must be rearranged to accommodate changes in office space and number of workers. Additionally, modular tiles simplify access to utilities, since the tiles can be removed without harming them. This is in direct contrast to broadloom carpets, which are permanently affixed to the floor, and only can be removed with great difficulty. Sometimes this removal so damages the carpet that it cannot be reused, or at least has been altered unfavorably in appearance. These factors are well known in the industry. In fact, some building codes even require the use of modular carpet tiles in commercial or industrial settings, so as to simplify access to utilities and electrical installations.

From the discussion above, one can see that modular carpet tiles offer significant advantages over other types of carpet, and this is reflected in the greater market share being

assumed by modular carpet tiles. However, producing satisfactory modular carpet tiles at acceptable cost is not straightforward.

Modular carpet tiles simply cannot be manufactured from 12 ft. broadloom carpets. While it might appear reasonable to a person without a thorough grounding in carpet making technology to assume that one could cut carpet tiles from a larger piece of carpet, such as a 12 ft. broadloom carpet, this approach would fail, for the following reasons.

All carpets are subject to stresses and pressures during normal usage. In 12 ft. broadloom designs, these stresses and impacts are spread across the wide surface of the carpet, thus damping the effect of any particular stress or strain. By contrast, each carpet tile is isolated and must bear the entire stress or strain that is applied to it. Additionally, the edges of the carpet tile cannot lift or shift appreciably, even under heavy impact or torsion, otherwise the uniform appearance of the carpet will be affected.

Because of this, dimensional stability and impact resistance are of far greater concern in modular tiles than in other types of carpet. In other words, modular carpet tiles must be significantly more resistant to impacts and stresses than a corresponding broadloom carpet, since each carpet tile is isolated, and because each tile must stay in place even under heavy impact, without being able to dissipate the stresses and strains applied to it to a surrounding region, as would be the case with a broadloom carpet.

If one attempted to cut carpet tiles from a conventional broadloom carpet, the tiles would quickly fail, since they would lack the structural strength and dimensional stability necessary to withstand the applied stresses and impacts. In order to have an acceptable service life, modular carpet tiles must have superior physical and structural characteristics, and also must be fabricated by different methods, than broadloom carpets.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and any such willful false statement may jeopardize the validity of the application or any patent issuing thereon.

Date: August 23, 2002

R. Carroll Turner
Technical Services Manager
Carpet and Rug Institute